

STATEMENT

by Prof. Vassil Borissov Delchev, PhD, DSc,

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Competition: for the academic position "associate professor"

at the Institute of organic chemistry with center of phytochemistry (IOC - CP)

in area of higher education: 4: Natural sciences, mathematics and informatics;
Professional field 4.2. Chemical sciences; scientific field "Theoretical chemistry"

Candidate: Chief assist. professor PhD Nadezhda Vasileva Markova, IOC - CP

Announcement of the Competition: **State Gazette No 79 / 2019**

Rector's order for the constitution of the Scientific jury: **РД-09-319/02.12.2019**

Decision of the first meeting of the Scientific jury: **to write an academic statement**

The documents applied consist of the next printed matter: 1) a Standard *Curriculum Vitae* of the candidate; 2) a PhD diploma; 3) abstract of the PhD thesis; 4) habilitation thesis in Bulgarian and English; 5) a list of all publications and a list of publications participating in the current competition; 6) an information for the implementation of the minimal national requirements; 7) an information for citations, awards, participations in conferences and scientific committees of conferences; 8) proofs for the teaching activity of the candidate. Among the application forms I did not find a file with general scientific contributions of the applicant especially for the scientific works with which Dr. Markova applies for the current academic position. Such information was sent to me after request.

Biographic information

In 2000 Dr. Nadezhda Markova has graduated at the Shumen University with a master's degree in Organic chemistry. In the period 2002 – 2005 she has been a PhD student in the IOC – CP, where in 2006 the candidate has defended successfully her PhD thesis. She has been awarded a doctoral degree in theoretical chemistry. The title of the PhD thesis is: "*Theoretical investigations of tautomeric equilibria in organic molecules with consideration of solvent influence*". In the same year she has held the position "assistant professor" at the IOC.

Scientific activity

Scientific works

The number of all publications of Dr. Markova is 34, most of them published in specialized scientific issues with a high impact factor. In 11 papers she is the leading author among the co-authors. In 4 papers she is the corresponding author. Dr. Markova has applied 4 papers in her PhD dissertation. They are not included in the current procedure.

For indicator B of the minimal national requirements in the professional field of the competition the applicant participates with one habilitation thesis entitled: "*Water as solvent and catalyst in tautomer reactions*" and five publications: four of them with quartiles Q1 and one of them with a quartile Q2. All publications are indexed in the world scientific databases SCOPUS and Web of Science (WoS).

For indicator Γ in the competition for the position "associate professor" Dr. Markova has presented 13 scientific works. Ten of them are published in international scientific journals and three of them in a Bulgarian specialized scientific journal - *Bulgarian Chemical Communications* (quartile Q4). One publication is published in a journal with a quartile Q1, five of them in journals with quartiles Q2, and four of them in journals with quartiles Q3. The

total number of the collected points for this indicator is 221. This number exceeds the required minimum of points in the minimal national requirements for the applied position.

The scientific contributions of the applicant are connected with the investigation of the mechanisms of organic reactions, mostly with theoretical methods. Dr. Markova has a particular contribution to the clarification of mechanisms of tautomer conversions of molecules in the ground and excited state. The proposed mechanisms explain the tautomer reactions, which were registered with experimental techniques – mostly IR and NMR spectroscopy. The contributions are connected as well with the clarification of the structures of nucleosides and biomolecules, coordination compounds etc.

Citations

For indicator A the applicant has applied 100 citations, all apparent in the databases *SCOPUS* and *WoS*. In this manner the total number of points for this indicator is 200. The minimally required number of points is 50, which means that the number of citations is four times larger than the required number. I'm wondering why the applicant has given so many citations for the current competition! Even the half of them would be enough for the purpose!

In the database *SCOPUS* I found 22 documents of Dr. Markova, which for the period 2006 – 2020 were cited 223 times. The Hirsch index based on these citations is $h = 7$.

Participations in scientific events and projects

Among the application documents I found with efforts a list of scientific forums in which the candidate has taken part. Such file is available in the folder with abstracts of her participations in conferences and scientific events. As seen Dr. Markova has participated in a lot of scientific forums in Bulgaria and abroad. According to the date listed in the applicant's CV, Dr. Markova has presented 18 oral reports and 40 posters.

Dr. Markova is a leader of two current scientific projects financed by the National science fund of Bulgaria. Under her leadership one project by the operational program "Human resources development" has been successfully realized. The applicant has been a member of the scientific teams of 8 projects, three of them financed by the National science fund of Bulgaria. The remaining projects have been financed by other institutions.

The applicant is a winner of one award for "higher scientific achievements". She has been awarded with two awards for "the best scientific oral report" on conferences organized by the University of Ruse "Angel Kanchev".

A nice impression makes the participation of Dr. Markova in the program committees of international conferences, e. g. the conferences held in Ohrid (R. Macedonia) and Novi Sad (R. Serbia) in 2017 and 2019 correspondingly.

Teaching activity

Dr. Markova has been a co-supervisor of two diploma works – for bachelor's and master's degree - of Nina Stoyanova, a student at the University of Sofia. The title pages of the diploma theses show that the objects of investigations were organic compounds exhibiting biologic activity. They have been treated with theoretical methods. Dr. Markova has been a mentor of two students (from the University of Chemical Technology and metallurgy, Sofia University and Medical University of Sofia) in the frames of the program "Student practices".

The candidate has assisted the advanced training of two PhD students from the South-west University of Blagoevgrad and from the Agricultural University of Plovdiv correspondingly.

No information about the published handbooks and lecture courses is available.

CONCLUSION

The materials provided are in agreement with the Law for development of the academic staff in Republic of Bulgaria and the Rules for its application. The candidate covers the minimal national requirements in the professional field. In some case she has exceeded the minimal requirements. Dr. Markova is an affirmative scientist in the theoretical chemistry field and I give my **positive vote** for her candidature with conviction. I recommend to the Scientific jury to propose to the Scientific council of the Institute of organic chemistry at the Bulgarian academy of sciences to elect chief assistant professor Dr. Nadezhda Markova to the academic position "associate professor" in area of higher education: 4: Natural sciences, mathematics and informatics; professional field 4.2. Chemical sciences; scientific field "Theoretical chemistry".

3.02.2020
Plovdiv

Author of the statement:.....